

# Whose Private Benefits of Control – Owners or Managers?

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August, 2004

## **ABSTRACT**

This paper empirically decomposes private benefits of control into two components: benefits accruing to managers and benefits accruing to owners. It documents that private benefits of control, as measured by block premium, increases slowly with respect to the ownership level, as measured by the percentage of shares acquired in block trade, but increases rapidly with respect to the likelihood of exercising managerial control of the firm, as measured by the probability of top executive turnover following block trade. To illustrate, for a ten-percent block trade, the block premium is 1.20%, 5.75%, 12.80% if there is a zero-percent, twenty five-percent, fifty-percent likelihood of subsequent top executive turnover, respectively. This indicates that managers enjoy more private benefits than owners.

\* I thank my advisor Utpal Bhattacharya valuable guidance and comments. I also thank Neal Galpin, Craig Holden, Robert Jennings, Inmoo Lee, Wendy Liu, and Xiaoyun Yu, for helpful comments. All errors remain my responsibility.

A vast finance literature studies private benefits of control. Yet most studies are vague about who is actually enjoying these private benefits of control. That is, previous literature has not clearly defined whether it is the owners (majority shareholders) of the company or it is the managers of the company who are enjoying the private benefits. For example, Benos and Weisbach (2003) define private benefits of control as “benefits that accrue to managers or shareholders that have control of the corporation, but not to minority shareholders.”<sup>1</sup> Decomposing private benefits into those accruing to managers and those accruing to owners may not be necessary in the case of family-owned firms which come close to where ownership and control are not separated (Ehrhardt and Nowak (2003)). But in the majority of modern US firms, where ownership and control are separated, and where the control of the firm has been delegated to managers, we need to be more careful in defining who actually enjoys private benefits of control. This paper empirically examines where the private benefits of control are coming from – whether they are arising from having block ownership of the firm or from having managerial control of the firm.

Among studies on private benefits of control, some have focused on managers as the beneficiary of private benefits of control. Jensen and Meckling (1976) note the perquisites enjoyed by top executives. Jensen (1986) shows how managers use their control rights to engage in projects that benefit managers rather than investors. Benos and Weisbach (2003) state “The ability of managers to take resources from their firms as private benefits is an important factor in corporate finance...” Also, exorbitant compensation packages given out to executives have been mentioned in recent corporate

corruptions investigations.<sup>2</sup> Finally, studies on managers' resistance to takeovers cite private benefits of control as a major reason for their resistance.

On the other hand, block owners of a firm also have the benefits of enjoying corporate benefits that are not shared with minority shareholders, and have an incentive to use their voting rights to consume corporate resources to their advantage. For example, they can pay excessive salaries and bonuses to their own board members, they can extract private benefits through self-dealing transactions, they can transfer assets to other companies under their control, or they can dilute the interests of minority shareholders by acquiring additional shares at a preferential price. As for studies which deal with private benefits of control accruing to owners, La Porta et al. (1999) state that, "...the central agency problem in large corporations around the world is that of restricting expropriation of minority shareholders by controlling shareholders..." Studies such as La Porta et al. (1999) and Johnson et al. (2000) focus on tunneling, which includes activities ranging from outright theft to selling assets or products at higher than market price to a firm in which a shareholder has a big stake, or buying at a low price from the firm. Demsetz and Lehn (1985) argue there are also non-pecuniary benefits or amenity benefits accruing to the owners of companies in media, entertainment, and sports industries.

Most empirical studies (e.g. Barclay and Holderness, (1989)) that try to measure private benefits of control estimate benefits accruing to the controlling owner of the firm and not to the managers of the firm. In this study, I decompose private benefits of control into benefits accruing to owners and benefits accruing to managers.

Hypothetically, "pure" owners of the firm are people who are owners of a company, but do not exercise any managerial influence in the firm. And "pure" managers

are people who manage the firm without having any ownership of the firm. It is impossible to quantify private benefits of control enjoyed by pure owners and pure managers for two reasons. First, though it is possible to find pure managers, it is impossible to find pure owners. This would not be a problem if their sources of private benefits are different (for example, a pure manager's private benefits may arise from earning excessive salaries and a pure owner's private benefits may arise from having amenity benefits from being an owner of a firm). However, their sources of private benefits may also be the same (for example, resources could be diverted from shareholders to a company which a manager or an owner has a stake in.)

To circumvent the above problems, I focus on large shareholders in this paper. A large shareholder is a mixture of an owner and a manager, because large shareholders often are powerful enough to exert influence over managers. That is, large shareholders, in addition to being owners, vary in degree as to how much managerial influence they have. While it is easy to measure the ownership level by looking at the percentage of shares acquired in the block trade, it is difficult to quantify the level of managerial control exercised by the owner. Among different managerial influences which blockholders can have, one of the most significant actions is to replace the top executive of the company.<sup>3</sup> In fact, Holderness and Sheehan (1988) find that many corporate majority shareholders place their representatives in top management position. In view of that, I quantify the level of managerial control exercised by the owner by the likelihood of top executive turnover within one year after the block trade. This measure is created by first examining whether there was a top executive turnover within one year of the block transaction and

then constructing an implied probability of a top executive turnover at the time of the block trade.

To decompose private benefits of control into ownership-related and managerial control-related, I first measure private benefits of ownership by estimating the marginal effect of the percentage of shares acquired on the block premium. Second, I measure private benefits from having managerial control of the firm by estimating the marginal effect of the probability of managerial turnover on the block premium. The above two tasks are achieved by using a two-stage simultaneous equation model, where both the block premium and the top executive turnover variables are treated to be endogenous variables.

The core of the analysis is a 3-D demonstration that shows how private benefits of control changes with respect to both the ownership level and the likelihood of the blockholder's managerial control of the firm. It shows that private benefits of control, as measured by block premium, increases slowly with respect to the ownership level, which is measured by the percentage of shares acquired in the block trade, but increases rapidly with respect to the likelihood of exercising managerial control of the firm, which is measured by the probability of top executive turnover within one year after the block trade. In addition, private benefits are more sensitive to the acquired ownership level when the likelihood of managerial control in the firm is higher.

To illustrate in numbers, for a ten-percent block trade, the block premium is 1.20% if there is a zero-percent likelihood of a subsequent top executive turnover, the block premium is 5.75% if there is a twenty five-percent likelihood of a subsequent top

executive turnover, and the block premium is 12.80% if there is a fifty-percent likelihood of subsequent top executive turnover. However, for a twenty-percent block trade, the block premium is 2.38% if there is a zero-percent likelihood of a subsequent top executive turnover, the block premium is 9.68% if there is a twenty five-percent likelihood of a subsequent top executive turnover, and the block premium is 19.48% if there is a fifty-percent likelihood of subsequent top executive turnover. All of these results, which can be summarized by the 3-dimensional graph showing the relationship among private benefits of control, block ownership, and the likelihood of the blockholder's managerial control of the firm, show that shareholders engaging in block trades value managerial control more than the level of ownership. This indicates that private benefits of control come more from managing the company than from just owning the company.

The rest of the paper is organized as follows. In Section 1, I discuss the related literature on the measurement of private benefits of control. Section 2 describes the data and descriptive statistics. The decomposition of private benefits of control into ownership-related and managerial control-related is examined in Section 3. Section 4 concludes.

## **1. Existing literature on measuring private benefits of control**

As a controlling party is able to use corporate resources to his benefit only if it is difficult or impossible to prove these actions in court, private benefits of control are inherently difficult to measure. Two different approaches have been proposed in the literature to estimate the size of private benefits.

The first approach studies the pricing of control blocks or large-percentage blocks of shares. Barclay and Holderness (1989) estimate private benefits of control by measuring the difference between the price per share paid for large-percentage blocks of common stock and the market price of the shares after the block transaction. Their reasoning is as follows. If all shareholders receive benefits in proportion to their fractional ownership, blocks should trade at the exchange price. But if blockholders can use their voting power to secure benefits that do not accrue to minority shareholders, then blocks will trade at a premium to the post-announcement exchange price.<sup>4</sup> Their measure of block premium is used as an estimate of private benefits of control. They find that the block premium averages 16 percent (median is 16 percent) of the post-announcement exchange price and 4.3 percent (median is 2.1 percent) of the total market value of the firm's equity. In subsequent studies that measure block premiums, Mikkelsen and Regassa (1991) report an average premium of 9.2 percent (median is 5.5 percent) of the exchange price for a sample of thirty-seven trades between 1978 and 1987. Nicodano and Sembenelli (2000), in a study of Italian companies, document average premium of 27 percent (median is 8.3 percent). Dyck and Zingales (2003) study 412 control transactions in 39 countries between 1990 and 2000 and document that the value of control ranges from -4% of firm value in Japan to +65% of firm value in Brazil. They conclude that on average, corporate control is worth 14% of the equity value of a firm.

The second way of measuring private benefits of control is by comparing prices of shares with identical dividend rights but with different voting rights, i.e. by examining dual class shares. Here the voting premium is used to estimate private benefits of control. This approach has been used in studies of Lease, McConnell and Mikkelsen (1983,

1984), DeAngelo and DeAngelo (1985), Zingales (1995), Nenova (2003), and Doidge (2003). Nenova (2003) finds that the value of control ranges from about 0% of the firm market value in Denmark to 50% in Mexico. Zingales (1995) estimates that the average voting premium is 82% in Italy compared to 10.5% in the U.S., and he argues that the difference in premium reflects the difference in the levels of corporate governance in the two countries. Doidge (2003) finds that non-U.S. firms that cross-list on U.S. stock exchanges have voting premiums that are on average 43% lower than other non-U.S. firms that do not cross-list. He argues that migrating to a higher governance standard setting reduces private benefits of control.

## **2. Data**

### **A. Data Formation**

I collect block trades over the period 1987 to 2002 from the SDC Mergers and Acquisitions database. Transactions must involve a transfer of a block of shares that comprises 5% or more of the shares outstanding and are classified as “block purchase” in the acquisition technique category of the SDC Mergers and Acquisitions database. 5% is the cutoff point used for measuring block premium because it is the point that triggers a mandatory filing to the SEC with regard to a block transaction. Thus block trades in my sample do not always represent the largest blocks at these firms. My initial sample size is 1,767. There must be information about price paid per share for the block transaction and the exchange price one day after the announcement of the block trade. Thus I exclude cases where the price paid per share may not be valued objectively, such as transactions

involving convertible bonds, liabilities, options, warrants, etc. After this screen, sample size is reduced to 1,140.

To rule out the cases where the transaction price may not reflect private benefits of control, I exclude cases where either the target or the acquirer is a subsidiary of the other party, or is a government. I further exclude transactions that are open market repurchases, tender offers, spinoffs, recapitalizations, self-tenders, exchange offers, repurchases, and acquisition of remaining interest. Also, to stay away from block trades that have any takeover motives, I rule out block trades that happen within six months prior to a merger or acquisition concerning the block trading company. These screening processes reduced the number of my sample firms to 811.

The parties of the block transaction can either be an insider or an outsider of the company. Barclay and Holderness (1989) note that purchasers of the trade are typically outsiders, and not one of the firm's directors or officers. In my initial sample, only 2.6% of the trades involve insider purchasers. I restrict my sample to only those block transactions where both parties are not affiliated with the company. The reason behind this selection criteria is that it is ambiguous as to how accurately the block transaction will reflect private benefits of control when insiders take part in the transaction. For example, insiders purchasing a block of shares may already have managerial and/or ownership control of the firm in which case they will not pay extra for the block. In the case of insider selling a block, he may still have a significant managerial/ownership control of the firm after the trade that he does not have to worry about losing his private benefits. Or at the other extreme, he may lose both managerial and ownership control

(possibly to the purchasing party) by losing his block of shares. By focusing on outsider purchasers, I am able to conduct a cleaner measurement of private benefits of control.<sup>5</sup>

This screening reduced my sample size to 784.

I also identify several characteristics of equity ownership structure and of board composition from the sample firm's proxy statement with the most recent record date prior to the block transaction. These further screens reduced my sample size to its final number, 756.

I search the LexisNexis Company Profiles to identify top executive turnovers within one year after the block transaction. Similar to previous studies, top executive in this study is defined as the CEO or, if a firm has no CEO, as the president. There are 5 firms in my sample that do not have a CEO and have the position of president. As in most studies (e.g., Weisbach (1988) and Denis, et al. (1997)), I exclude top executive turnovers that are part of the normal retirement process and those related to death or illness. The criterion for the normal retirement is that the manager is between the ages of 64 and 66. These cases are included in my sample firms but are not counted as turnovers.<sup>6</sup>

## **B. Summary Statistics**

Table 1 reports descriptive statistics for different ownership structures and board composition characteristics for 756 sample firms and for firms categorized between those that had top executive turnover within one year of the block transaction and those that did not.

[Table 1 Approximately Here]

Block premium is computed by taking the difference between the price per share paid for the block and the exchange price one day after the announcement of the transaction. Percentage block premium is thus defined as follows.

$$\% \text{ Block Premium} \equiv \left[ \frac{(\text{Price per share paid for the block}) - (\text{one day after exchange price})}{\text{one day after exchange price}} \right] \times 100$$

The percentage block premium averages 9.42% for the whole sample. This figure is smaller than the average block premium of 16% reported by Barclay and Holderness (1989). The difference may arise from the difference in sample period, which covers the period 1978-1982 in the case of Barclay and Holderness (1989) and 1987-2002 in this study. Also, by using the SDC database, I am able to construct 756 sample block trades whereas Barclay and Holderness (1989) searches Wall Street Journal to identify 63 block trades. Therefore, my sample will include more of less dramatic block trades since Wall Street Journal reports only news worthy events.

For trades that are followed by top executive turnover within one year of the block trade, the premium averages 18.1% whereas for those that do not have subsequent top executive turnover within one year of the block trade, it averages only 6.8%. The difference is significant at the 1% level. This difference in the block premium indicates that there may be benefits to having managerial influence on the firm over and above the benefits of just owning a block of shares of the firm. Also, more shares are being acquired for block trades that have subsequent top executive turnover. This implies that the acquirer may be more likely to have managerial influence in the firm as he holds more shares of the firm.

Table 1 also displays that, on average, insiders control 5.39% of the firm's shares in my sample. Insider ownership includes those shares owned by individuals related to a member of the top management team, employee pension or stock option plans, trusts for which managers have some voting authority, and any other blocks of shares over which a member of the top management team has voting authority. By way of comparison, Morck et al. (1988) report that average ownership of all officers and directors is 10.6% in a sample of 371 Fortune 500 firms and Mikkelsen and Partch (1989) report an average insider ownership of 19.6% in a random sample of New York and American Stock Exchange firms. Consistent with previous studies, insiders hold less shares and firms have worse performance for those firms that experience top executive turnover. But with respect to the fraction of firms with outsider dominated boards and the fraction of firms where the top executive is a member of the founding family, I do not find significant difference between firms with top executive turnover and firms without top executive turnover within one year of the block trade.

As for the firms' board composition, fraction of cases where the acquirer is an individual, and the average institutional ownership, there are almost no differences between the sample of block trades that have top executive turnover within one year of the block trade and those that do not.

### **3. Results**

#### **A. Determinants of Block Premium**

Table 2 shows the results of a cross-sectional regression of block premiums using the following model.

$$\begin{aligned}
 \text{Block premium}_i = & \alpha + \beta_1 \cdot (\text{percentage of shares acquired})_i + \beta_2 \cdot (\text{prior firm performance})_i \\
 & + \beta_3 \cdot \log(\text{firm size})_i + \beta_4 \cdot (\text{leverage})_i + \beta_5 \cdot (\text{tangibility of assets})_i + \beta_6 \cdot (\text{individual acquirer dummy})_i \\
 & + \beta_7 \cdot (\text{bank acquirer dummy})_i + \beta_8 \cdot (\text{acquirer is in the same industry dummy})_i \\
 & + \beta_9 \cdot (\text{top executive turnover dummy})_i + \sum \beta_j \cdot (\text{industry dummies})_i + \sum \beta_h \cdot (\text{year dummies})_i
 \end{aligned}$$

Possible factors that can affect the premium can be categorized into those that reflect the characteristics of the block, characteristics of the purchaser, characteristics of the seller, and whether the block trade involves managerial control of the firm.

[Table 2 Approximately Here]

### **A1. Characteristics of the block**

Larger fractional ownership gives the blockholder more influence in terms of having greater voting rights. Larger ownership also provides greater protection from a hostile takeover or proxy contest. Beyond a certain point, however, few additional private benefits will result from increased fractional ownership if the blockholder holds sufficient amount of shares. There are also costs to owning a large portion of shares, such as incurring monitoring costs or suffering from an undiversified portfolio in the case of individual blockholders. This means that blockholders tend not to accumulate shares beyond a threshold. If the threshold varies by firm, there may be no discernible relation between fractional ownership and block premium. Barclay and Holderness (1989) and Dyck and Zingales (2003) have shown that there is a positive relationship between block

premium and the size of shares acquired. My Table 2 also shows that premiums tend to be larger as the fractional size of a block increases. When I include the square term of the percentage of shares acquired, its coefficient is not significant at conventional levels.

## **A2. Characteristics of the purchaser (acquirer)**

Private benefits of control can be different with respect to whether the owner is an individual or a corporation. On one hand, individuals, compared to corporate blockholders, have an added benefit of having control or ownership of the firm by being able to consume perquisites (Demsetz and Lehn (1985)). On the other hand, corporate blockholders care more about gaining access to a firm's production technology in order to take advantage of synergies or economies of scale with their own production. Holderness and Sheehan (1988) find that block premiums are larger for individuals than they are for corporations. I, however, find that individual acquirers are associated with smaller, although not statistically significant, block premiums.

In the case where the acquirer is a corporation, there may be more benefits to the acquirer if it is in the same industry as the target company. Thus, I include a dummy variable that takes a value of one when the acquiring company is in the same industry group as the target. The results indicate that premium is higher when the acquirer is in the same industry group as the target, but it is not statistically significant.

If the acquirer is a financial company, there may not be large private benefits of control involved in block trades because financial companies may acquire shares mainly for financial reasons. Financial companies may lack managerial control motives for

purchasing shares in this case. Thus, I include a dummy variable that takes the value of 1 when the acquirer is a financial company. Results in Table 2 show that the premium is indeed lower when banks purchases block of shares, but it is not statistically significant.

### **A3. Characteristics of the seller (target)**

Size of private benefits will be greater if the firm is performing well and smaller if the firm is having financial difficulties. Thus, I include prior year's market-adjusted stock return, which is defined as the percentage of common stock return for the 12 months ending two months before the block trade announcement minus the return on the CRSP equal-weighted index. I obtain qualitatively similar results when I use the CRSP value-weighted index. In both cases, the block premium is statistically larger for firms that had better performance.

Block premium should increase with firm size because larger firms offer potentially larger benefits, both pecuniary and nonpecuniary. And since illiquid stocks are more likely to be sold at a discount, the positive relationship between block premium and size can also be based on the theory that firm size is a proxy for the liquidity of the stock. On the other hand, costs of being a blockholder also increase with firm size, as larger firms are likely to be monitored more closely by security analysts, government officials, and institutional investors. I measure firm size as the logarithm of the book value of total assets. Results in Table 2 show that the effect of firm size on block premium is not significant. Results do not change if I measure firm size as the market value of equity plus the book value of debt.

The size of debt may affect the size of block premium. However, prior relationship between private benefits and debt is not clear. Debt can have a negative effect on private benefits by constraining access to free cash flow (Jensen (1986)). In contrast, debt can also increase one's effective control over corporate assets (Harris and Raviv (1988), Stulz (1988)). Leverage is measured as the book value of debt over book value of assets, and it turns out insignificant in my results.

Private benefits may differ across industries. Demsetz and Lehn (1985) suggest that companies in media, entertainment, and sports industries have higher private benefits of control. I capture industry differences by categorizing target companies into their major industry group based on the two-digit SIC code. Manufacturing (first two digits of the SIC code is 20-39) is the most common industry group and is the excluded category. Other than retail trade industry group dummy, which is marginally significant at the 10% level, other industry dummy variables turn out to be insignificant. Results are still insignificant when I assign industry dummies to firms in media, entertainment, and sports industries.<sup>7</sup>

Private benefits of control may also be related to the tangibility of assets of the firm. The higher the tangibility of assets, the lower will be the premium because acquirers will have more difficulty in diverting resources if assets are tied down and easily observable. Dyck and Zingales (2003) show a negative but insignificant relationship between block premium and the tangibility of assets in their international study. In Table 2, I find a negative and marginally significant relationship between block premium and the tangibility of assets, which is measured as fixed assets over total assets.

#### **A4. Managerial Control by the Blockholder**

To distinguish between the private benefits of owning and managing the company from those of just owning the company, I use top executive turnover event within one year after the block trade as gauging the managerial control exercised by the blockholder. Holderness and Sheehan (1988) show that for trades of majority blocks of stock, 71% of the trades involve turnovers among the three top managers within one year of the trade and conclude that many corporate majority shareholders place their representatives in top management position.

I assume that block premiums whose trades are followed by top executive turnover within one year reflect the private benefits of managing the company in addition to owning the company; and I assume that block premiums whose trades are not followed by top executive turnover within one year only reflect the private benefits of just owning the company. Therefore, I include a dummy variable for block trades which are followed by top executive turnover in the firm within one year of the block trade. My results show that block premiums are indeed larger for trades that are followed by the change in top executive. The expected block premium goes up by more than 8% for trades that have subsequent top executive turnover in the firm within one year of the block trade.

In general, my results in Table 2 are consistent with the results of Barclay and Holderness (1989) and Dyck and Zingales (2003). I find that premiums tend to be larger as the fractional size of the block increases, as firm performance before the trade increases. What is new in Table 2 is that the block premium is greater if the top executive is replaced following the block transaction. This suggests that there may be private

benefits of control from having managerial control of the firm (as reflected by the positive coefficient of the top executive turnover) over and above the benefits of control from having just the ownership of the firm (as reflected by the coefficient of the percentage of shares acquired).

## **B. Determinants of top executive turnover**

A possible shortcoming of the approach used in the previous section is the endogeneity of the top executive turnover variable. Previous literature have found that prior firm performance, ownership structure, board composition, and the status of top executive all affect the likelihood of top executive turnover. That is, there are greater incentives to replace a top executive under certain circumstances and blockholders can capture value from doing so. However, the actual ability to exert influence and to replace the top executive varies among different blockholders. Thus, in this section, I estimate the blockholder's influence to replace the top executive conditional on the value of replacing. Later in Section 4.3, I measure how the block premium changes with respect to this implied probability of a top executive turnover. By following this approach, I am able to capture both the ability to exert influence (replace the top executive) and the incentive to capture value from doing so.<sup>8</sup>

To carry out this task, I identify several characteristics of equity ownership structure and of board composition from the sample firm's proxy statement with the most recent record date prior to the block transaction.

Studies (e.g. Weisbach (1988), Yermack (1996), Denis, Denis, and Sarin (1997)) have found that the probability of top executive change is negatively related to prior firm performance and the ownership stake of officers and directors, and positively related to the presence of an outside blockholder. Table 3 estimates logit models relating the probability of top executive turnover to firm performance, ownership characteristics, and other potential determinants of turnover. Model 1 is the basic model whereas model 2 includes interaction terms between prior firm performance and ownership structure variables shown to influence the likelihood of management turnover. Numbers in Table 3 refer to marginal effects where derivatives are evaluated at mean values.

$$\begin{aligned}
 \text{MODEL 1} : \text{ Top executive turnover dummy}_i &= \alpha + \beta_1 \cdot (\text{prior firm performance})_i \\
 &+ \beta_2 \cdot (\text{percentage of shares acquired}) + \beta_3 \cdot \log(\text{firm size})_i + \beta_4 \cdot (\text{insider ownership})_i \\
 &+ \beta_5 \cdot (\text{top exec. is founding family dummy})_i + \beta_6 \cdot (\text{outsider dominated board dummy})_i
 \end{aligned}$$

$$\begin{aligned}
 \text{MODEL 2} : \text{ Top executive turnover dummy}_i &= \alpha + \beta_1 \cdot (\text{prior firm performance})_i \\
 &+ \beta_2 \cdot (\text{percentage of shares acquired}) + \beta_3 \cdot \log(\text{firm size})_i \\
 &+ \beta_4 \cdot (\text{dummy for } 5\% < (\text{insider ownership}) < 25\%)_i \\
 &+ \beta_5 \cdot (\text{dummy for } (\text{insider ownership}) > 25\%)_i + \beta_6 \cdot (\text{top exec. is founding family dummy})_i \\
 &+ \beta_7 \cdot (\text{outsider dominated board dummy})_i \\
 &+ \beta_8 \cdot (\text{prior firm performance})_i \cdot (\text{dummy for } 5\% < (\text{insider ownership}) < 25\%)_i \\
 &+ \beta_9 \cdot (\text{prior firm performance})_i \cdot (\text{dummy for } (\text{insider ownership}) > 25\%)_i \\
 &+ \beta_{10} \cdot (\text{prior firm performance})_i \cdot (\text{outsider dominated board dummy})_i
 \end{aligned}$$

[Table 3 Approximately Here]

### **B1. Block size**

A blockholder who owns a greater proportion of a firm's shares has more voting power in the company. A blockholder also has more incentive to work towards value-

increasing activities as he holds more shares of the firm. I thus include the percentage of shares acquired in the block trade as an explanatory variable for the top executive turnover. Results in Table 3 confirm that block size is positively associated with the likelihood of a top executive turnover. To see if there is a threshold at which the block is large enough to assure top executive turnover, I also run a piecewise linear regression where the block size variable is divided into two variables at the cutoff point of 50%. The results for the piecewise linear regression show that both block size variables are significant. Although the significance level for the coefficient of block size is weaker once the percentage of shares acquired reaches 50%, the difference between the two coefficients are not statistically significant.

## **B2. Characteristics of ownership structure**

More managerial shareholdings may better align the interests of managers and shareholders, and provide managers with a greater incentive to invest in firm-specific human capital. (Jensen and Meckling (1976), DeAngelo and DeAngelo (1985)) On the other hand, it can also entrench management such that it makes it more difficult to transfer control and to remove a manager. (See, for example, Stulz (1988) for a theoretical study and Mikkelsen and Partch (1989) for an empirical work)<sup>9</sup> Empirically, studies have shown that there is generally a negative relationship between management turnover and the ownership of officers and directors. (Ofek (1993), Mikkelsen and Partch (1996), Denis, et al. (1997)) Table 3 shows results which are consistent with previous studies; higher the insider ownership, less the likelihood of top management change.

Also, the existence of outside blockholder that own nontrivial amounts of a firm's equity may reduce the degree of managerial entrenchment associated with a given level of managerial ownership (Shleifer and Vishny (1986)). Further, Denis, et al. (1997) show that top executive turnover is positively related to the presence of an outside blockholder. Denis et al. (1997) show that the existence of outsider blockholder influences the relationship between the likelihood of top executive turnover and the firm's past performance. But since my sample firms are restricted to those whose shares are purchased in block by the outsiders of the firm, every firm in my sample have outside blockholders. Thus, I do not include this variable in my regression.

### **B3. Characteristics of board composition**

Studies (e.g. Brickley et al. (1994), Byrd and Hickman (1991), Weisbach (1988)) suggest that internal monitoring is improved by having a higher fraction of independent outsider directors. Following the classification used by Weisbach (1988) and Denis et al. (1997), I distinguish firms with outsider-dominated board when the company's board contains at least 60% outsiders.<sup>10</sup> My results in Table 3 indicate that having outsider-dominated board alone does not affect the likelihood of top management turnover. This is consistent with Weisbach (1988) and Denis et al. (1997).

### **B4. Status of the top executive**

According to Morck et al. (1988), manager's status as the founder of the firm may be conducive to managerial entrenchment. Denis, et al. (1997) show empirically that the top executive is less likely to be replaced if he or she is a member of the founding family.

However, my results in Table 3 show that the top executive's status as the founder of the firm has only marginal effect on the probability of him or her being replaced for my sample of firms.

### **B5. Prior firm performance**

Results in Table 3 show that the probability of top management turnover is negatively related to prior firm performance, which is measured as the percentage of common stock return for the 12 months ending two months before the block trade announcement minus the return on the CRSP equal-weighted index. I obtain qualitatively similar results when I use the CRSP value-weighted index. This result is consistent with previous studies; worse the performance, more likely is the likelihood of top executive turnover.

In Model 2 of Table 3, I follow Morck et al. (1998) and Denis et al. (1997) and classify firms into three categories of managerial ownership: less than or equal to 5%, between 5% and 25%, and greater than 25%.<sup>11</sup> I then examine how insider ownership and outsider dominated boards affect the sensitivity of top executive turnover to performance, as done by Denis et al. (1997) and Weisbach (1988).<sup>12</sup> Denis et al. (1997) find a weaker relationship between performance and turnover in firms with high insider ownership. The existence of outsider dominated board is found to have a significant influence on the sensitivity of turnover to performance in Weisbach (1988), whereas it is shown to be insignificant in Denis, et al. (1997).

Results of Model 2 in Table 3 show that firms that have insider ownership greater than 25% have 55% lower likelihood of top management being replaced. Firms that have insider ownership between 5% and 25% lower the probability of top management change by 22%, although it is only marginally significant.

My regression results also show that insider ownership has a significant impact on the sensitivity of turnover to performance. The probability of turnover is significantly negatively related to performance when insider ownership is less than 5%. However, the significant positive coefficient on the interaction of RET with the dummy variable denoting insider ownership between 5% and 25% indicates that the probability of turnover is significantly less sensitive to performance for firms in this ownership category. In fact, the relationship between top executive turnover and past performance becomes statistically insignificant for firms with insider ownership between 5% and 25%. These results are consistent with the findings of Denis et al. (1997).

Surprisingly, I find that firms with outsider-dominated boards have less sensitivity of top management turnover to performance. This result is contrary to that of Weisbach (1988), which finds a stronger association between prior performance and the probability of a top executive turnover for companies with outsider-dominated boards.

### **C. Two-stage logit regression**

After providing an estimate of the blockholder's influence to replace the top executive conditional on the value of replacing, I now measure how the block premium changes with respect to this implied probability of a top executive turnover. I run a

simultaneous equation model where the first equation has a dichotomous endogenous variable (top executive turnover) and the second equation has a continuous endogenous variable (block premium). I use a two-stage estimation method described in Maddala (1983) for simultaneous equation models in which one of the endogenous variable is continuous and the other endogenous variable is dichotomous.

The basic model is

*First Equation* :

$$\begin{aligned} \text{Top executive turnover dummy}(T/O)_i = & \alpha + \beta_1 \cdot (\text{prior firm performance})_i \\ & + \beta_2 \cdot (\text{percentage of shares acquired}) + \beta_3 \cdot \log(\text{firm size})_i + \beta_4 \cdot (\text{insider ownership})_i \\ & + \beta_5 \cdot (\text{top exec. is founding family dummy})_i + \beta_6 \cdot (\text{outsider dominated board dummy})_i \end{aligned}$$

*Second Equation* :

$$\begin{aligned} \text{Block premium}_i = & \alpha + \beta_1 \cdot (\text{percentage of shares acquired})_i + \beta_2 \cdot (\text{prior firm performance})_i \\ & + \beta_3 \cdot \log(\text{firm size})_i + \beta_4 \cdot (\text{leverage})_i + \beta_5 \cdot (\text{tangibility of assets})_i \\ & + \beta_6 \cdot (\text{individual acquirer dummy})_i + \beta_7 \cdot (\text{bank acquirer dummy})_i \\ & + \beta_8 \cdot (\text{acquirer is in the same industry dummy})_i + \beta_9 \cdot (\hat{T/O})_i \\ & + \sum \beta_j \cdot (\text{industry dummies})_i + \sum \beta_h \cdot (\text{year dummies})_i \end{aligned}$$

Two-stage regression results for block premium are shown in Table 4. This is the main table in the text. Model 1, the basic model, includes the probability of top executive turnover variable (T/O1) from Model 1 of Table 3 as an explanatory variable. Model 2 includes the probability of top executive variable (T/O2) from Model 2 of Table 3 as an explanatory variable.

[Table 4 Approximately Here]

Both the percentage of shares acquired and the probability of management turnover significantly affect the block premium. The positive coefficient of the percentage of shares acquired implies that there are private benefits of control from having ownership of the firm. According to Model 1, owning 20% more shares of the firm increases the block premium by about 2.6%. The positive coefficient of the probability of top executive turnover variable indicates that there are private benefits of control from having managerial control of the company over and above the level coming from just owning the company. In the case of going from having no chance of top executive turnover within a year of the block trade to having 100% chance of top executive turnover within a year of the trade, the block premium jumps by more than 9%. Considering the average block premium of 9.42%, this suggests that in cases where the blockholder is certain to exercise managerial control of the firm, most of the private benefits of control are coming from having managerial power of the firm.

Results for the control variables are mostly similar to those in Table 2, which treats top executive turnover as exogenous. The coefficients of bank acquirer dummy, firm size, leverage, and same industry acquirer dummy remain insignificant. Coefficient of the tangibility of assets variable is significantly negative, as in Table 2. What's different from Table 2 are the coefficients to the individual acquirer dummy variable and the prior firm performance variable. In Table 2, I find that individual acquirers are associated with smaller, albeit not statistically significant, block premiums. In Table 4, the coefficient of individual acquirer dummy is positive and significant at the 10% level. This is consistent with Holderness and Sheehan (1988), which find that block premiums are larger for individuals than they are for corporations. This also supports the argument

of Demsetz and Lehn (1985) that individuals, compared to corporate blockholders, have an added benefit of having control or ownership of the firm by being able to consume perquisites.

As for the prior firm performance variable, it is no longer a significant determinant of block premium. This is different from Table 2, where prior firm performance was marginally positively associated with block premium.

In Model 3 and 4, I include the interaction term between the percentage of shares acquired and the probability of top executive turnover. Model 3 uses the probability of top executive turnover as defined in Model 1 of Table 3, and Model 4 uses the probability of top executive turnover as defined in Model 2 of Table 3. While the significances of other variables are similar to results in previous models, the interaction term is significant at a 10% level in Model 3 and significant at a 5% level in Model 4. This suggests that the private benefits from having ownership and private benefits of having managerial control reinforce each other. That is, having more ownership of the firm increases the private benefits if it results in more likelihood of having managerial control of the firm as well. Also, greater likelihood of exerting managerial control of the firm increases private benefits if blockholder holds more shares of the firm.

I include a square term of the probability of top executive turnover and the percentage of shares acquired in Model 5. The square term of the probability of top executive turnover is statistically significant at the 5% level whereas the square term of the percentage of shares acquired is not significant. Thus, block premium is increasing at an increasing rate with respect to the implied likelihood of a top executive change. But

block premium does not increase at an increasing rate with respect to the fraction of shares acquired. This suggests that the private benefits of control increases at an increasing rate as the new blockholder is more likely to exercise managerial control of the firm, but does not increase at an increasing rate as his ownership level grows.

Figure 1 captures the essence of this paper. It shows a 3-dimensional plot depicting the relationship among block premium, percentage of shares acquired, and the probability of top executive turnover according to Model 5 of Table 4. As can be seen in the graph, private benefits of control, as measured by the block premium, is increasing slowly with respect to the ownership level, as measured by the percentage of shares acquired, and increasing rapidly with respect to the likelihood of managerial control, as measured by the probability of top executive turnover within one year of the block trade.

To give a numerical example, I estimate block premium as a function of percentage of shares acquired in the block when the implied probability of top executive turnover is 25 percent, and all the other independent variables remain constant at their average values. I re-estimate this function when the implied probability of top executive turnover is 75 percent, and all the other independent variables remain constant at their average values. The two functions are depicted in Figure 2. The slope of the graph when the probability of top executive turnover is at 25 percent level is +0.39, whereas the slope is +0.94 when the probability of turnover is at 75 percent level. This means that though the private benefits of control from having ownership of the firm increases as the level of ownership increases, the rate of this increase increases as the probability of management turnover increases. In this example, the sensitivity increases more than two folds from

0.39 to 0.94. Assuming that the percentage of shares acquired in the block transaction is 14.22% (which is the average in our sample), the estimated block premium for this size is 7.41% when there is 25% likelihood of top executive turnover. This block premium jumps to 26.33% when there is a 75% likelihood of top executive turnover.

Table 5 shows the average block premiums and the sensitivities of block premium to the percentage of shares acquired for various probabilities of top executive turnover within one year of the block trade, given the average percentage of shares acquired in the block transaction of 14.22%. The sensitivity of block premium to the percentage of shares acquired is the regression coefficient of the percentage of shares acquired variable, given a certain probability of top executive turnover, when I fit block premiums on significant variables according to the regression Model 5 of Table 4. Results in Table 5 indicate that both the private benefits of control and the sensitivity of private benefits of control to ownership increases as the likelihood of managerial control the blockholder is expected to have increases.

[Table 5 Approximately Here]

In Table 6, I calculate values of block premium for different values of block size and different values of the probability of top executive turnover within a year of the block transaction, according to Model 5 of Table 4 and holding other independent variables at their means.

[Table 6 Approximately Here]

For a ten-percent block trade, the block premium is 1.20% if there is a zero-percent likelihood of a subsequent top executive turnover, the block premium is 5.75% if there is a twenty five-percent likelihood of a subsequent top executive turnover, and the block premium is 12.80% if there is a fifty-percent likelihood of subsequent top executive turnover. However, for a twenty-percent block trade, the block premium is 2.38% if there is a zero-percent likelihood of a subsequent top executive turnover, the block premium is 9.68% if there is a twenty five-percent likelihood of a subsequent top executive turnover, and the block premium is 19.48% if there is a fifty-percent likelihood of subsequent top executive turnover. Thus, block premium increases at an increasing rate with respect to the probability of top executive turnover, holding everything else constant. However, with respect to the percentage of shares acquired, block premium increases at a constant rate, holding everything else constant. For example, for block trades that have twenty five-percent probability of top executive turnover, the block premium is 5.75% for a block trade with ten-percent block size, the block premium is 9.68% for a block size of twenty-percent, and the block premium is 13.61% for a thirty-percent block size.

These numbers, along with the 3-dimensional graph in Figure 1, illustrate the fact that private benefits of control is a convex function of the likelihood of exercising managerial control of the firm, and is a linear function of the amount of having ownership of the firm. These results indicate that block trading parties value the likelihood of having managerial control of the firm more than they value the amount of ownership in the firm. This in turn implies that managers have more private benefits of control than owners.

#### **4. Conclusion**

I decompose private benefits of control into benefits accruing from having ownership of the firm and benefits accruing from having managerial control of the firm. I show that private benefits of control increase slowly with respect to having more ownership of the firm, but increases rapidly with respect to having more managerial control of the firm. This suggests that managers have more private benefits of control than owners.

To the extent that weak shareholder rights bring out agency costs (e.g., weak shareholder rights reduce the likelihood of takeover and hinder the removal of incompetent management, which in turn cause managerial shirking, perquisites consumption, or empire building) and that higher agency costs are associated with greater private benefits of control enjoyed by the agent, this study suggests that issues on improving shareholder rights should focus more on those who actually have managerial control of the firm, rather than looking at all the large owners of the firm.

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<sup>1</sup> As another example, Grossman and Hart (1988) define private benefits of control as “the benefits current management *or* the acquirer obtain for themselves, but that the target security holders do not obtain.”

<sup>2</sup> For example, see "Public Skeptical of Corporate Corruption Crackdown" *Washington Times* (04/19/04)

<sup>3</sup> More extreme case of the blockholder’s influence on the firm would be to engage in takeover of the firm. But in this case, my sample of block transactions can be corrupted with takeover transactions, or with transactions that have takeover motives.

<sup>4</sup> They measure the premium using the post-announcement price, because the price that follows the announcement will incorporate the expected effect of the transaction.

<sup>5</sup> Another possible reason for not using trades that involve insiders may be that insiders may be more informed, thus purchasing undervalued shares and selling overvalued shares. But this is not much of a concern since the benchmark I use for measuring the block premium is the post-announcement price, which is a price when the public incorporates all the information about the block transaction, including the identity of the trading parties.

<sup>6</sup> If I exclude firms with CEO turnovers happening at retirement age or occurring due to illness, my sample size becomes 625. Results are qualitatively similar using this reduced sample, although some results are weaker.

<sup>7</sup> These firms are those that have the first two digits of the SIC code as 27,48, 78,79 or the first three digits of the SIC code as 731.

<sup>8</sup> I thank the referee for improving my description on dealing with endogeneity issue.

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<sup>9</sup> Entrenched management may be immune to the discipline of the product market (Hart (1983)), monitoring by large shareholders (Shleifer and Vishny (1986)), and value-enhancing takeovers (Jensen and Ruback (1983), Franks and Mayer (1990)).

<sup>10</sup> A director is an outside director when she is not an employee of the company, has no family connection with the management of the company, nor has any business dealings with the company.

<sup>11</sup> Denis et al. (1997) also use other cutoff points as a robustness test and find that the sensitivity of turnover to performance changes significantly at the 5% cutoff point but it does not matter much for the upper cutoff point, as long as it is between 15% and 30%.

<sup>12</sup> As for other interaction variables, studies generally find insignificant coefficient terms when they use the interaction term between performance and a continuous insider ownership variable and when they use squared insider ownership variable interacted with performance. Denis et al. (1997) finds that when they use the ownership of only the top executive, the relationship between turnover and past performance is significant only when the top executive ownership is less than 1% of the firm's shares.



**Table 1**  
**Summary Statistics**

This table gives means and medians of several variables for 756 firms whose blocks are traded between 1987 and 2002. Block trades are identified through the SDC Mergers and Acquisition database. Firms belong to subsequent CEO T/O group if there is a turnover in the top executive position of the firm within one year after the block trade. Incidence of top executive turnover is found through the search of the LexisNexis Company Profiles. Percentage block premium is defined as  $100 * \{(\text{price per share paid for the block}) - (\text{exchange price one day after the announcement of the transaction})\} / (\text{exchange price one day after the announcement of the transaction})$ . Prior firm performance is the percentage of common stock return for the 12 months ending two months before the block trade announcement minus the return on the CRSP equal-weighted index. Outsider dominated board dummy is a dummy variable that takes a value of one when the board has more than 60% of its directors who are outsiders of the company. Top exec is founding family dummy variable is a dummy variable that takes the value of 1 when the top executive is a member of the founding family. Insider holding variable is the percentage of shares owned by officers and directors and includes those shares owned by individuals related to a member of the top management team, employee pension or stock option plans, trusts for which managers have some voting authority, and any other blocks of shares over which a member of the top management team has voting authority. Percent of shares acquired is the percentage of shares acquired in the block transaction. Transaction value is the number of shares acquired in the block transaction multiplied by the trading price of the block. Leverage is measured as the book value of long-term debt over book value of assets. Individual acquirer dummy is a dummy variable that takes the value of 1 when the acquirer is an individual. Data on block premium, percentage of shares acquired, transaction value, individual purchaser dummy, total asset, market value of equity are from SDC Mergers and Acquisition database. Data on leverage are from Compustat for the year prior to the block transaction. Data on prior firm performance is from CRSP. Data on board and ownership structure are from the last proxy statements (according to the record date) prior to the block trade. Dollar values are in millions. Significant differences for two groups are indicated at the ten-, five- and one-percentage levels by \*, \*\*, and \*\*\* respectively according to the Wilcoxon rank-sum test.

	whole sample		Subsequent CEO T/O		no subsequent CEO T/O		Difference in mean
	mean	median	mean	median	mean	median	
block premium (%)	9.42	8.03	18.10	15.70	6.83	5.87	11.26***
firms with positive premium (%)	69.31	-	72.25	-	68.44	-	3.81
prior firm performance (%)	12.29	7.35	-6.13	2.50	17.75	8.79	-23.88***
outsider dominated board dummy	0.72	1.00	0.73	1.00	0.72	1.00	0.01
top exec is founding family dummy	0.20	0.00	0.18	0.00	0.20	0.00	-0.02
insider holding (%)	5.39	0.22	3.09	0.21	6.07	2.23	-2.97*
percent of shares acquired (%)	14.22	10.00	16.20	13.02	13.62	9.95	2.59**
transaction value (mil)	58.78	14.63	61.42	16.97	57.96	13.20	3.46
total asset (mil)	744.26	97.58	700.00	81.52	756.93	102.11	-56.94
leverage	0.19	0.09	0.21	0.16	0.18	0.08	0.03
Individual acquirer dummy	0.19	0.00	0.14	0.00	0.21	0.00	-0.07
board size	7.63	7.00	7.29	7.00	7.72	7.00	-0.44
institutional ownership (%)	27.43	22.26	26.59	21.49	27.66	22.58	-1.07
sample size	756		173		583		

**Table 2**  
**Determinants of Block Premium**

Table 2 shows the results of a cross-sectional regression of block premiums. Block premium (%) is defined as  $100 * \{(\text{price per share paid for the block}) - (\text{exchange price one day after the announcement of the transaction})\} / (\text{exchange price one day after the announcement of the transaction})$ . Percentage of shares acquired is the percentage of shares acquired in the block transaction. Prior firm performance is the percentage of common stock return for the 12 months ending two months before the block trade announcement minus the return on the CRSP equal-weighted index. Log of firm size is the natural logarithm of book value of assets. Leverage is measured as the book value of long-term debt over book value of assets. Tangibility of assets is  $[(\text{fixed assets})/(\text{total assets})] * 100$ . Bank acquirer dummy is a dummy variable that takes the value of 1 when the acquirer is a financial company. Acquirer is in the same industry dummy is a dummy variable that takes a value of one when the acquiring company is in the same industry group as the target. Top executive turnover dummy is a dummy variable that takes the value of one if the firm whose shares were traded in a block experienced a top executive turnover within one year after the block trade. Incidence of top executive turnover is found through the search of the LexisNexis Company Profiles. Major industry group dummies based on the two-digit Standard Industrial Classification (SIC) code and year dummies (not reported) are included in the regression. Data on block premium, percentage of shares acquired, transaction value, individual purchaser dummy, total asset, market value of equity are from SDC Mergers and Acquisition database. Data on leverage and tangibility of assets are from Compustat for the year prior to the block transaction. Data on prior firm performance is from CRSP. Data on board and ownership structure are from the last proxy statements (according to the record date) prior to the block trade. Significant coefficients are indicated at the ten-, five- and one-percentage levels by \*, \*\*, and \*\*\* respectively.

Independent variables	Dependent var. : block premium (%)	
	coefficient	p-value
percentage of shares acquired (%)	0.09***	0.00
prior firm performance (%)	0.002*	0.10
log of firm size (mil)	-0.95	0.71
leverage	0.36	0.14
tangibility of assets (%)	-0.16*	0.09
individual acquirer dummy	-3.94	0.16
bank acquirer dummy	-4.63	0.24
acquirer is in the same industry dummy	0.84	0.12
top executive turnover dummy	8.13**	0.04
industry - agriculture, forestry, fishing	-1.52	0.45
industry - mining	-2.73	0.73
industry - construction	0.36	0.26
industry - transportation and utilites	2.78	0.42
industry - wholesale trade	-2.32	0.33
industry - retail trade	3.26*	0.08
industry - finance, insurance, real est.	3.57	0.42
industry - services	-2.30	0.29

**Table 3**  
**Determinants of Top Executive Turnover**

Table 3 estimates logit models relating the probability of top executive turnover to firm performance, ownership characteristics, and other potential determinants of turnover. Numbers are marginal effects where derivatives are evaluated at mean values. Dependent variable is the top executive turnover dummy variable, which takes the value of one if the firm whose shares were traded in a block experienced a top executive turnover within one year after the block trade. Incidence of top executive turnover is found through the search of the LexisNexis Company Profiles. Prior firm performance is the percentage of common stock return for the 12 months ending two months before the block trade announcement minus the return on the CRSP equal-weighted index. Firm size is the natural logarithm of book value of assets. Insider ownership variable is the percentage of shares owned by officers and directors and includes those shares owned by individuals related to a member of the top management team, employee pension or stock option plans, trusts for which managers have some voting authority, and any other blocks of shares over which a member of the top management team has voting authority. Top exec if founding family variable is a dummy variable that takes the value of 1 when the top executive is a member of the founding family. Outsider dominated board is a dummy variable that takes a value on one when the board has more than 60% of its directors who are outsiders of the company. Data on total asset, market value of equity are from SDC Mergers and Acquisition database. Data on prior firm performance is from CRSP. Data on board and ownership structure are from the last proxy statements (according to the record date) prior to the block trade. Dollar values are in millions. P-values are in parentheses. Significant coefficients are indicated at the ten-, five- and one-percentage levels by \*, \*\*, and \*\*\* respectively.

Independent variables	Dep var : top executive turnover	
	Model 1	Model 2
prior firm performance(%) (RET)	-0.010** (0.02)	-0.011** (0.01)
percentage of shares acquired (%)	0.051** (0.04)	0.049** (0.04)
log of firm size (mil)	-0.032* (0.07)	-0.034* (0.07)
insider ownership (%)	-0.008** (0.04)	
dummy for 5% < (insider ownership) < 25%		-0.219* (0.09)
dummy for (insider ownership) > 25%		-0.545** (0.03)
top exec is founding family dummy	-0.233* (0.07)	-0.206* (0.08)
outsider dominated board dummy	-0.154 (0.64)	-0.178 (0.56)
RET * [dummy for 5% < (insider ownership) < 25%]		0.011** (0.04)
RET * [dummy for (insider ownership) > 25%]		-0.004 (0.18)
RET * [outsider dominated board dummy]		0.006** (0.03)

**Table 4**  
**Two Stage Regression of Block Premium**

Table 4 shows the results of a two-stage regression model of estimating block premium, treating the probability of top executive turnover as endogenous. Probability of top executive turnover is the implied probability of management turnover at the time of the block trade and is created from a logit regression of Table 3. This probability is then multiplied by 100. Probability of executive turnover\_1 is the implied probability of turnover from Model 1 in Table 3. Probability of executive turnover\_2 is the implied probability of turnover from Model 2 in Table 3. Block trades are identified through the SDC Mergers and Acquisition database. Incidence of top executive turnover is found through the search of the LexisNexis Company Profiles. Block premium (%) is defined as  $100 * \{(\text{price per share paid for the block}) - (\text{exchange price one day after the announcement of the transaction})\} / (\text{exchange price one day after the announcement of the transaction})$ . Percentage of shares acquired is the percentage of shares acquired in the block transaction. Individual is a dummy variable that takes the value of 1 when the acquirer is an individual. Bank acquirer dummy is a dummy variable that takes the value of 1 when the acquirer is a financial company. Log of firm size is the natural logarithm of book value of assets. Leverage is measured as the book value of long-term debt over book value of assets. Prior firm performance is the percentage of common stock return for the 12 months ending two months before the block trade announcement minus the return on the CRSP equal-weighted index. Tangibility of assets is  $[(\text{fixed assets})/(\text{total assets})]*100$ . Acquirer is in the same industry dummy is a dummy variable that takes a value of one when the acquiring company is in the same industry group as the target. Major industry group dummies based on the two-digit Standard Industrial Classification (SIC) code and year dummies are included in the regression (not reported). Data on block premium, percentage of shares acquired, individual purchaser dummy, and total asset are from SDC Mergers and Acquisition database. Data on leverage are from Compustat for the year prior to the block transaction. Data on prior firm performance is from CRSP. Dollar values are in millions. P-values are in parentheses. Significant coefficients are indicated at the ten-, five- and one-percentage levels by \*, \*\*, and \*\*\* respectively.

Independent variables	Dependent variable: block premium (%)				
	Model 1	Model 2	Model 3	Model 4	Model 5
percentage of shares acquired (%) (Block)	0.129** (0.04)	0.140** (0.04)	0.096** (0.03)	0.098** (0.04)	0.118** (0.03)
individual acquirer dummy	2.325* (0.09)	2.658* (0.10)	1.881* (0.09)	1.790* (0.11)	1.884* (0.09)
bank acquirer dummy	-4.371 (0.29)	-4.964 (0.26)	-4.688 (0.27)	-4.580 (0.24)	-4.371 (0.24)
log of firm size (mil)	0.019 (0.66)	-0.039 (0.69)	0.018 (0.78)	-0.015 (0.75)	-0.008 (0.67)
leverage	0.292 (0.10)	0.268 (0.11)	0.317* (0.09)	0.325 (0.10)	0.319* (0.09)
prior firm performance (%)	-0.001 (0.18)	-0.001 (0.14)	-0.001 (0.15)	-0.001 (0.14)	-0.001 (0.13)
tangibility of assets (%)	-0.119* (0.06)	-0.103** (0.04)	-0.098** (0.04)	-0.113** (0.03)	-0.102** (0.03)
acquirer is in the same industry dummy	0.652 (0.13)	0.684 (0.17)	0.527 (0.11)	0.403 (0.15)	0.483 (0.11)
[prob of top executive turnover_1] (T/O1)	0.092** (0.01)		0.073** (0.02)		
[prob of top executive turnover_2] (T/O2)		0.095** (0.02)		0.041** (0.02)	0.022** (0.02)
[prob of top executive turnover_2] <sup>2</sup>					0.002** (0.04)
[percentage of shares acquired] <sup>2</sup>					0.009 (0.46)
Block * T/O1			0.012* (0.08)		
Block * T/O2				0.018** (0.03)	0.011** (0.04)

**Table 5**  
**Average implied block premium and the sensitivity of block premium to the percentage of shares acquired for different probabilities of top executive turnover**

This table calculates block premiums and the sensitivity of block premium to the percentage of shares acquired. I fit percentage block premiums on significant variables according to the regression Model 5 of Table 4, given different values to the implied probability of top executive turnover and when all the other independent variables remain constant at their average values. Block premium (%) is defined as  $100 * \{(\text{price per share paid for the block}) - (\text{exchange price one day after the announcement of the transaction})\} / (\text{exchange price one day after the announcement of the transaction})$ . The sensitivity of block premium to the percentage of shares acquired is the coefficient of the percentage of shares acquired variable in the fitted equation, given a certain probability of top executive turnover.

Prob. of top executive turnover	Block premium (%)	Sensitivity of block premium to the percentage of shares acquired
0%	1.70%	0.118
10%	3.68%	0.228
23%	6.86%	0.371
25%	7.41%	0.393
50%	15.62%	0.668
75%	26.33%	0.943
90%	33.96%	1.108
100%	39.54%	1.218

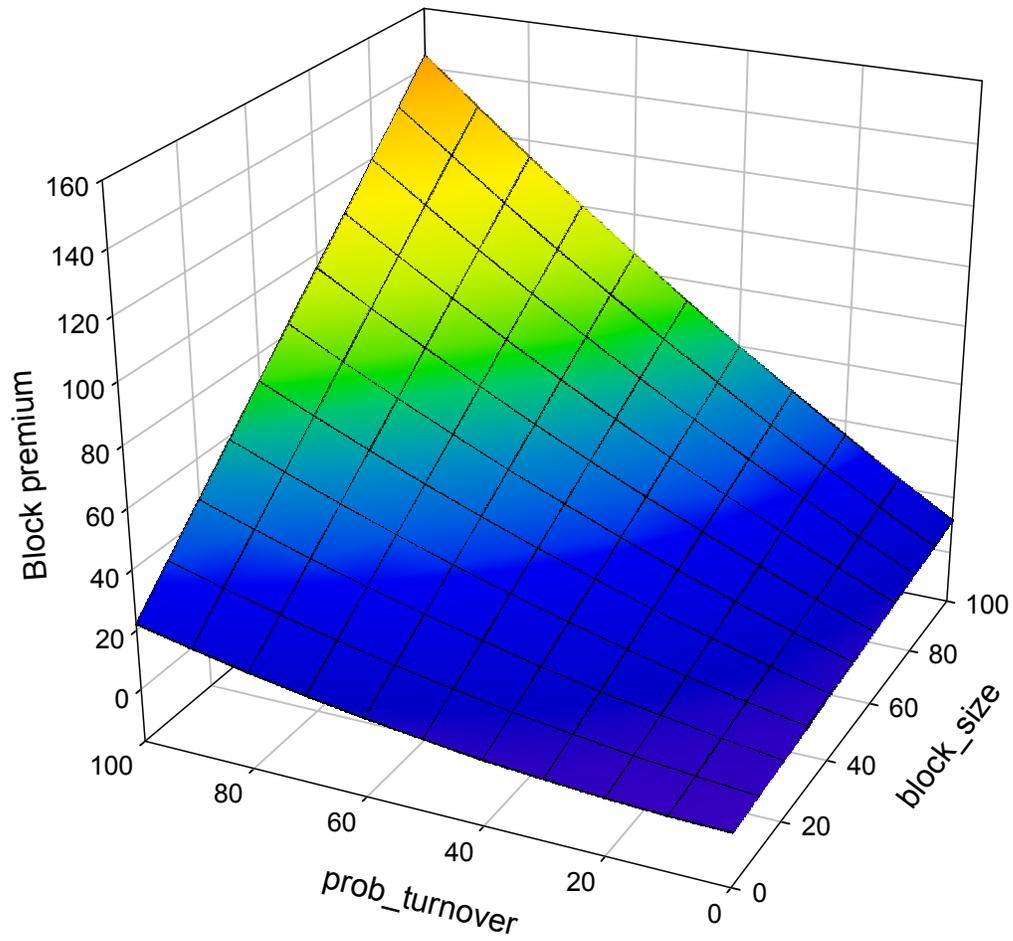
**Table 6**  
**Average percentage block premiums for different block sizes and the probabilities of top executive turnover**

This table calculates block premiums according to Model 5 of Table 4, given different values of the block size (percentage of shares acquired) and the implied probability of top executive turnover, while holding other variables at their means.

prob of top executive turnover	block size as a percentage of firm's equity						
	5	10	15	20	25	30	50
0	0.61	1.20	1.79	2.38	2.97	3.56	5.92
10	1.58	2.72	3.86	5.00	6.14	7.28	11.84
20	2.95	4.64	6.33	8.02	9.71	11.40	18.16
25	3.79	5.75	7.72	9.68	11.65	13.61	21.47
30	4.72	6.96	9.20	11.44	13.68	15.92	24.88
40	6.89	9.68	12.47	15.26	18.05	20.84	32.00
50	9.46	12.80	16.14	19.48	22.82	26.16	39.52
75	17.64	22.35	27.07	31.78	36.50	41.21	60.07
100	28.31	34.40	40.49	46.58	52.67	58.76	83.12

**Figure 1**  
**Relationship between block premium, percentage of shares acquired, and the probability of top executive turnover**

Figure 1 shows a 3-dimensional plot depicting the relationship among block premium, percentage of shares acquired, and the probability of top executive turnover according to Model 5 of Table 4.



**Figure 2**  
**Relationship between block premium and the percentage of shares acquired,**  
**when the probability of top executive turnover is 75% versus 25%.**

Figure 2 shows block premium as a function of percentage of shares acquired in the block when the implied probability of top executive turnover is 25 percent and 75 percent, respectively, and all the other independent variables remain constant at their average values.

